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Thus, for durability of the cutters, steels of these grades are not only adequate substitutes for cutters of RFI high-speed steel, but exceed it both in relative speed of cutting (from 8-26 percent) and in durability (from 100-200 percent).

From an economic point of view, molybdenum-vanadium steel has other advantages over RFI: the cost is considerably less, the steel can be produced from domestic raw materials, and the smelting and forging of molybdenum-vanadium high-speed steel does not present as great difficulties as does the smelting and forging of RFI high-tungsten steel. The technology of producing tools from the molybdenum-vanadium steel presents no difficulties.

Stal', Vol V, No 1, Jan 45

Chrome-silicon tool steel 6KhS (EI325) is designed for use in the production of percussion tools: pneumatic hammer chisels, blades for cold and hot cutting of metals, small dies, stamps, and other tools which demand considerable hardness with moderate toughness. The chemical composition of the steel is as follows: 0.60-0.70 percent C; 0.60-1.00 percent Si; ≤ 0.40 percent Mn; 1.0-1.30 percent Cr; ≤ 0.30 percent Ni; ≤ 0.030 percent S; ≤ 0.030 percent P.

Comparison tests were made of 6KhS and 4KhVS, 5KhVS, 5KhNM, and U8A to define the possibility of replacing the latter four grades, to save on scarce alloys, and to increase productivity at the expense of a small increase in steel price by using grade 6KhS instead of U8A.

The tests showed that the hardness of 6KhS after hardening and tempering up to 200 degrees is higher than in 5KhVS and 4KhVS; the hardness after tempering above 300 degrees is lower than 5KhVS, but higher than 4KhVS; temporary resistance at temperatures up to 300 degrees is higher than 4KhVS, 5KhVS, and 5KhNM, but is lower at a temperature above 400 degrees.

In the production of chisels, small dies, and stamps, 6KhS can be substituted for U8A, 4KhVS, 5KhVS, 6KhVS, and 5KhNM. For chisels, this steel is more durable than U8A, is better than 5KhNM for dies, and better than 4KhVS for stamps. The substitution of 6KhS for 4KhVS, 5KhVS, and 6KhVS provides a saving in tungsten, and at the same time provides good durability of chisels, stamps, and dies (in cold or semihot working). Steel 6KhS is used by a number of plants for production of chisels, blades, and stamps, but its use in production of dies should be more widely tested.

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